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SUSTAINABLE DEVELOPMENT IN TIMES OF TRANSITION – THE CASE OF UKRAINE

1. Introduction

Continuous world economic growth has resulted in substantial improvements in health, education and the quality of life for many people. However, such growth has also caused significant deterioration of the environment. Negative impacts include: (1) the destruction of natural ecosystems at an alarming rate resulting in considerable losses in biodiversity; (2) tremendous increases in soil, air and water contamination; (3) accumulation of sizeable amounts of waste in the environment that can neither be assimilated by the biosphere nor managed by humans effectively; (4) extensive land degradation, including catastrophic deforestation and desertification; (5) global climate change; and (6) depletion of nonrenewable resources such as gas, oil and coal. Additionally, population pressure, poverty, social injustice, and problems regarding food security have negatively impacted on human development. This combination of threats and insecurities has spawned a new approach known as sustainable development, one which has been accepted almost globally. Sustainable development is a modern concept of interaction between society and nature which integrates economic growth and social development with environmental protection. It is development which "meets the needs of the present generations without compromising the ability of future generations to meet their own needs." [*Our Common Future*, 1987]. One of the main characteristics of sustainable development is that it depends on systems of government that are transparent, participatory and accountable, with all stakeholders having full access to any relevant information and decision-

making processes. Principle 10 of the Rio Declaration on the Environment and Development stresses the need for the participation of citizens in environmental issues and for citizens to have access to governmental information on the environment [*Rio Declaration on the Environment and Development*, 1992]. The role of participatory democracy is emphasized in numerous intergovernmental documents on sustainable development issues, particularly as a means of managing conflicts in society and achieving justice. Further, the realization of sustainable development in any country or region must come hand in hand with a strengthening of citizen's rights and freedoms. Many nations transforming from communist to democratic systems have adopted principles of sustainable development.

Ukraine in Eastern Europe is one such country. Ukraine gained its independence in 1991 after the collapse of the Soviet Union. Slightly smaller than the U.S. state of Texas, Ukraine has a population of approximately 48 million people, ranking as the fifth most populated country in Europe and 21st in the world. Ukraine embodies many environmental traits of the post-communist states. As a key industrial center of the former Soviet Union, Ukraine suffers heavily from pollution and ineffective utilization of natural resources. Although it has experienced recent political changes through its "Orange Revolution", independent Ukraine has mostly been managed as a centralized economy and by political survivors from the communist-era, who are less interested in reform than in self-aggrandizement and wealth accumulation. Both gross domestic product and personal incomes decreased significantly in the 1990s and the export structure shifted from high-tech products to basic commodities. The Ukrainian economy has become even more resource-intensive and environmentally unfriendly compared to the period immediately prior to independence [Gess, 2006, 145]. The impact of agricultural production systems on the environment has been devastating. This sector is estimated to cause 35–40% of total environmental degradation in the country [MENR, 2003]. Since 2000, Ukraine has experienced constant economic growth. This may be explained by numerous factors, such as the slow but persistent economic transformation, governmental reforms, the emergence of a private sector and an increase in the number of private enterprises. However, various experts stress that current economic development in Ukraine is far from sustainable. According to the 2005 World Economic Forum's Environmental Sustainability Index, Ukraine ranks 108th among the 146 nations considered [Gess, 2006, 147].

2. The History of Sustainable Development in Ukraine

Ukrainian representatives participated in the 1992 Earth Summit. Their Parliament Speaker, Ivan Plutzh, signed the Earth Summit's documents

on behalf of the Ukrainian people. In 1997 at the "Rio + 5" Global Meeting, the Ukrainian delegation reaffirmed the government's commitment to move toward sustainable development. Again, in 2002, President Kuchma led the Ukrainian delegation to the World Summit on Sustainable Development in Johannesburg. Ukraine was among the creators of the "West-East" environmental partnership between Eastern European countries and Central Asian republics. In 1997 the National Commission on Sustainable Development was established and chaired by the Deputy Prime Minister. Several draft concepts for sustainable development were prepared during 1997–2002. Some of these were discussed with the public. In March 2002 one of the drafts was adopted by the commission and presented to parliament for adoption. This draft states that moving toward sustainable development in Ukraine is defined as a process of building the state on the basis of the harmonization of economic, social and ecological components with the purpose of meeting the needs of today's and future generations. Furthermore, sustainable development favors national economic growth which is distributed equitably, protection of the environment and the elimination of poverty. The draft also lays out a strategy for eliminating barriers to and proceeding toward sustainable development [Anulushun, 2003, 76].

The draft strategy on sustainable development for Ukraine was not passed by parliament in March 2002 on the strength of Communist and Socialistic Party block voting. However, with all the press attention leading up to the Johannesburg summit, the Ukrainian Cabinet of Ministries called for a political compromise on sustainable development legislation at a special meeting in August 2002. In late 2002, the Cabinet of Ministries adopted a comprehensive program for decision-making and implementation based upon the World Summit. This program emphasizes that expanded legislation on environmental protection, a national environmental fund and environmental audit, together with insurance and monitoring systems, are necessary requisites for sustainable development. Some elements of this program were incorporated into the national government's action plan for 2003–2004. But to date, no governmental document regarding sustainable development in Ukraine has been officially adopted. In February 2007 parliament adopted "a Concept of the Economic, Social and Ecological Development of Ukraine till 2020" on its first hearing, which is in reality a plan for implementing sustainable development in Ukraine [*Verkhovna Rada*, 2007].

3. The Research Questions

We argue that if Ukraine and its people are to be successful in achieving goals of sustainable development, it is important to understand the values and

attitudes of key actors. Even though the concept of sustainable development was introduced widely into global society almost twenty years ago, sustainable development is sufficiently vague as a concept and lacks a clear definition outlining concrete goals and strategies [Durant, 2004, 25; Torgerson, 1999, 106]. One important research question is how key policy and education actors think about and define sustainable development. Furthermore, it is important to understand whether or not these actors share common attitudes and beliefs. For example, do they agree that Ukraine is ready to adopt the principles and concepts of sustainable development? Do they agree on an appropriate balance for the different factors (social, economic, environmental), or are they divided on their prioritization of these dimensions? Do they feel that government can lead the way, or is the issue too political and better left to scientists or the public at large? Understanding how various individuals involved in the debate over sustainable development think and feel about these and other issues is important to understanding the future of Ukrainian society, environment and economy. By answering these research questions, we are able to identify areas of common ground on which the foundations for achieving sustainable development may be built.

4. Research Methods

We chose Q-methodology as an appropriate technique for examining the attitudes, views and understandings of key actors in the Ukrainian debate on sustainable development. Q-methodology, which has been utilized ever since Stephenson [1935, 297] first introduced it more than seventy years ago, allows us to study the subjective views of the participants scientifically or empirically. This methodology seeks to understand how people think about a particular topic and is related to post-positivist epistemology. Q-methodology is also intensive, seeking an in-depth understanding of the subject matter. There are several steps in carrying out a Q-study, as described below.

Creating the Q-Sample

The first step to conducting research using Q-methodology, or a Q-study, is to create a sample of communication or conversation about the topic. It is important that this sample, known as the "Q-sample," covers the entire range of views and attitudes on the subject. The researcher uses his or her judgment to select statements to maximize diversity. Traditionally there are two ways of doing this. The first is through a series of unstructured interviews or conversations with representatives of the study population, either as a group or individuals. The participants in such an endeavor are allowed to brainstorm

the breadth of attitudes, views and understandings of the topic. The second way to generate a Q-sample is to select statements from the relevant literature on the topic. For our work, we utilized a hybrid of the two. We began with a group of statements from an earlier Q-study examining sustainable development: Logan and Beltrao [1995, 86] specifically examined Brazilian policy makers. The applicable statements were modified as necessary and additional statements were added as needed. Next the whole Q-sample was translated into Ukrainian. The Q-sample was then discussed with a few individuals familiar with and involved in issues regarding sustainable development in Ukraine. This feedback was helpful in finalizing the Q-sample so that all the statements were appropriate to and applicable in the Ukrainian context. A few additional statements were added to ensure a diverse range. The final Q-sample consisted of sixty statements, twelve from each of five dimensions of sustainable development: environmental, economic, social, governmental and definitional.

Defining the Person Sample

The next step in Q-Methodological research is to assemble a group of people – known as the "person sample" or "p-sample" – of theoretical interest to the study. In order to better grasp the progress towards achieving the goals of sustainable development in Ukraine, we are most interested in those individuals involved with such issues. For this reason we targeted representatives from national ministries, councils, and parliament, local government leaders, private sector entrepreneurs, as well as researchers, professors and students from institutions of higher learning and research. Thirty-six individuals participated in this research program (twenty women and sixteen men). The age of the participants ranged from eighteen to sixty-five (with a mean of 34.6). All of the participants hold or are working toward a university degree; many hold or are working toward a post-graduate degree.

Performing the Q-Sorts

In 2003 and 2004, the thirty-six individuals completed the Q-sort process. In all cases, one of the researchers was present to observe. Often this was done one-on-one, but on several occasions the researchers took advantage of a larger gathering of subjects to have many complete the Q-sorts at the same time. Participants were handed sixty small square pieces of paper, each printed with one of the Q-sample statements (in Ukrainian). They were asked to sort the statements in a quasi-normal distribution along an integer scale from –5 to 5, where –5 represents "strongly disagree" and 5 represents "strongly agree".

Analyzing the Q-Sorts

Once all the Q-sorts were collected from the p-sample, they were analyzed using PQMethod software. Such a technique, which is easily accomplished with the PQMethod program, requires the researcher to manually rotate the various factors based upon theoretical criteria or understandings of the topic and p-sample. At this point in the analysis, we found the correlations between the four factor scores to be quite high, as demonstrated in Table 1. We therefore opted for an unrotated solution. An unrotated solution confines the variance to the first factor instead of spreading it across all factors. This results in a "consensus" Factor A, with dissenting or minority views being represented by the subsequent factors. The resulting correlations between the consensus factor and other factors are high as expected among the factor scores, while they are reasonably high between Factors B, C and D (Table 2).

Table 1. Correlations between the factor scores (rotated solution)

Factor	Factor			
	A	B	C	D
A	1	0.77	0.86	0.82
B		1	0.76	0.66
C			1	0.76
D				1

Source: authors' own research.

Table 2. Correlations between the factor scores (unrotated solution)

Factor	Factor			
	A	B	C	D
A	1	0.79	0.73	0.57
B		1	0.53	0.49
C			1	0.44
D				1

Source: authors' own research.

The analysis indicated that thirty-five of the thirty-six individuals scored significantly according to Factor A, the consensus factor. Additionally, six participants scored significantly according to Factor B, two according to Factor C, and three according to Factor D. The only participant not scoring significantly according to Factor A (ID number 015) scored significantly according

to two other factors: B and D. Factor coefficients above 0.33 were accepted as statistically significant at the 0.01 level. This value was calculated according to the following formula: cutoff for significance = 2.58 × standard error = 2.58 × (1/√number of q-statements) = 2.58 × (1/√60) = 0.33. Table 3 shows how each of the participants score on the four factor scores.

Table 3. Factor scores and selected characteristics of the respondents

P	Factors				Sex	Age	Place of Employment
	A	B	C	D			
016	**0.71**	**0.49**	–0.34	0.00	F	62	university professor
015	0.30	**0.44**	0.15	**0.34**	M	47	government utility company
021	**0.74**	**0.44**	–0.32	–0.03	F	21	university student
018	**0.74**	**0.41**	–0.16	–0.06	F	21	university student
022	**0.50**	**0.37**	0.26	0.14	F	21	university student
023	**0.59**	**0.34**	0.05	–0.25	F	20	university student
027	**0.65**	0.00	**0.52**	–0.06	F	19	university student
028	**0.71**	0.24	**0.37**	0.09	F	20	university student
030	**0.49**	–0.17	–0.08	**0.54**	F	18	university student
005	**0.45**	–0.06	–0.11	**0.45**	M	42	university professor
002	**0.81**	0.13	0.08	–0.03	F	31	university administrator
024	**0.78**	–0.17	0.10	–0.27	F	21	university student
003	**0.76**	–0.27	0.05	–0.08	M	33	member of parliamentary ecological committee
006	**0.75**	–0.04	–0.09	–0.24	M	54	university professor
001	**0.73**	–0.05	0.15	0.11	M	51	member of parliamentary ecological committee
008	**0.73**	–0.02	–0.01	–0.05	M	31	university professor
029	**0.73**	0.07	0.20	–0.12	F	19	university student
009	**0.72**	–0.28	–0.18	–0.11	F	55	scientific institute
011	**0.72**	–0.20	–0.14	–0.24	F	65	scientific institute
026	**0.71**	0.10	–0.07	–0.02	F	19	university student
013	**0.68**	–0.38	–0.26	0.12	F	38	university professor
032	**0.67**	–0.08	0.24	–0.27	F	20	university student
031	**0.66**	–0.34	0.14	0.11	M	18	university student
025	**0.65**	–0.13	–0.20	0.20	M	44	mayor
017	**0.65**	–0.33	–0.14	0.07	M	61	ministry of environment
034	**0.62**	0.05	–0.10	0.06	F	24	PhD student
010	**0.62**	0.27	–0.11	–0.01	M	23	PhD student

Table 3. contd.

P	Factors				Sex	Age	Place of Employment
	A	B	C	D			
020	**0.59**	0.01	0.27	0.29	M	21	university student
012	**0.59**	–0.07	–0.25	0.20	F	52	scientific institute
033	**0.58**	0.10	0.32	–0.20	M	43	municipal city council
014	**0.56**	0.19	–0.10	0.27	M	42	entrepreneur
035	**0.56**	0.08	–0.04	–0.14	F	28	scientific institute
036	**0.56**	–0.11	–0.30	–0.19	M	48	university professor
019	**0.53**	–0.28	–0.18	–0.24	F	21	university student
004	**0.51**	–0.33	0.17	0.30	M	46	municipal government
007	**0.51**	–0.32	0.31	–0.02	M	45	scientific institute

Source: authors' own research.

5. Interpretation of the Results

The four factor types according to which respondents were classified must be examined to define the views, values and attitudes toward sustainable development described by each factor. The differences between each factor can most easily be explained by determining which statements were made by each type of respondent grouped at the extremes of the sorting continuum, or the statements with which they most agreed or disagreed (those scoring –5, –4, 4 and 5). The different factors can further be described by examining those statements for which the factor scores most disagreed (*e.g.* a statement which has a +5 score for one factor type and a –5 score for another factor type). Finally, it is also informative to examine the statements which have the same factor scores; these are the statements with which different factor types agree. Appendix A lists all the statements and includes weighted average rank-scores for each of the four factors.

Factor A: Balanced Positivists (The Consensus Factor)

As described in Section 4, all but one participant scored highly according to Factor A. This consensus factor demonstrates that there is much agreement among respondents concerning sustainable development in Ukraine. While it may prove more interesting to examine the divergent or minority factors, it is none-the-less important to describe Factor A as well. Factor A reveals common attitudes and values concerning the topic and is a usual launching point for building consensus. Factor A respondents can best be described as "balanced positivists". Many of the statements with which Factor A participants highly agree reference a balance between the environment and economic growth,

among various societal sectors, goals and organizations, as well as between the present and the future:[1]

- Statement 2: Sustainable development means finding a balance between economic growth and preserving natural resources.
  5 4 3 4
- Statement 18: Sustainable development is a harmonization of society on three tiers: economic, environmental, and social.
  5 5 3 5
- Statement 11: Sustainable development must be a process that considers future more than present economic needs.
  4 1 0 4
- Statement 19: For sustainable development to progress, different types of organizations (governmental agencies, private firms, NGOs) with quite distinct values and goals, must work together.
  4 3 5 0
- Statement 53: Public participation in environmental decision making is important for sustainable development.
  4 2 4 –2

Likewise, many statements with which Factor A individuals disagree reflect this theme of balance:

- Statement 20: Social aspects are not a priority for sustainable development.
  –4 –4 –4 1
- Statement 23: It is impossible to have economic growth without harming the environment.
  –4 –3 –2 –4
- Statement 17: The concept of sustainable development is more about preserving local culture, religion, freedom, aesthetics and ethics than economic or environmental issues.
  –5 –5 –1 0
- Statement 57: Sustainable development means going back to what our grandparents did or involves rejecting certain technologies.
  –5 –5 –4 –5

We label the other distinctive characteristic for Factor A respondents as "positivism". This is a belief that there is at least one best way of achieving the goals of sustainable development and that science and expertise can lead us down the correct path. Furthermore, there is a regulatory role for trained government officials (including those at the local level) in moving toward these

[1] The weighted average rank scores for each factor are reported from Factor A to Factor D (left to right).

goals. Also, Factor A individuals discount the idea that Ukraine is not ready to implement the concepts of sustainable development, but is ready to pragmatically and cautiously embrace these concepts. Statements at both ends of the scale support this interpretation:

– Statement 35: Because in many cases natural resources have been mismanaged for so long, we should put scientists and scientifically trained experts in charge now.
  5 5 2 2
– Statement 33: Local government officials should make environmentally-sensitive decisions and perhaps even receive environmental training.
  4 2 1 4
– Statement 60: Government regulation is indispensable if we are going to protect basic ecological systems.
  4 5 –1 3
– Statement 44: It is not possible to achieve sustainable development in Ukraine now because there is no middle class.
  –4 –3 –3 –3
– Statement 52: Sustainable development is only a theory and cannot currently be implemented in Ukraine.
  –4 4 –4 –1
– Statement 47: The concepts of sustainable development are really only for Western, developed countries.
  –5 –3 –5 –3

It is best to examine how Factor A respondents differ from the other three factor types as the minority positions are described.

Factor B: Balanced Pessimists/Nationalists

Following the definition of a consensus factor, there is of course much overlap between Factors A and B. In fact, of the five individuals who scored significantly according to Factor B, all but one also scored significantly according to Factor A (and more strongly than according to B). For example, Factor B subjects also advocate a balanced approach to sustainable development, and ranked Statements 2, 17, 18, 20 and 57 similarly to Factor A respondents. Additionally, Factor B participants advocate government regulation (statement 60, +5) and a role for scientists (statement 35, +5). However, Factor B types differ from Factor A types in some very important ways. First of all, Factor B respondents are more skeptical regarding the adoption and benefits of the concepts of sustainable development in Ukraine, as evidenced by:

– Statement 52: Sustainable development is only a theory and cannot currently be implemented in Ukraine.
  –4 4 –4 –1

Note that Statement 52 – and the implementability of sustainable development – demonstrates not only that Factor B differs significantly from Factor A, but from the other two factors as well. Although not ranked as highly by Factor B participants as some other statements, Statement 9 also supports such a divergence regarding the struggle to define the concept of sustainability:

– Statement 9: The concept of sustainable development is too new to define.
  –2 3 –2 –1

Although Factor B subjects do strive for a balance, this balance seems to be colored more by ecological than economic foundations:

– Statement 8: Integration of ecological awareness into economic development will strengthen the sustainable development movement.
  3 4 1 1
– Statement 38: Environmental data can be used for the development of action plans for local communities/governments.
  3 4 0 2
– Statement 40: Achieving sustainable development will require stabilizing or reducing the environmental burden (the harm we cause the environment).
  3 4 4 –2
– Statement 55: Natural resources are unlimited since our genius for short term technical improvisation is equal to any crisis that is likely to arise.
  –2 –4 –2 –3

Finally, Factor B types seem much more pessimistic with regard to local governmental, market or grassroots approaches to sustainable development:

– Statement 6: The free market allows each of us to compete peaceably and negotiate with each other for control of land on which to impose our vision of our relationship with nature.
  –3 –4 –3 –5
– Statement 14: Public action (protests, marches, etc.) is very important to the implementation of sustainable development in Ukraine.
  –3 –4 –5 –5
– Statement 30: Sustainable development is a local issue and its implementation should be controlled by local governments and communities.
  –3 –4 –3 1

It bears emphasizing that no participant only scored significantly according to Factor B. In fact, those that scored significantly according to this factor also scored more strongly according to Factor A. Indeed, these individuals show characteristics of both Factor A and Factor B types (in contrast to those who only scored significantly according to Factor A).

Factor C: Market Collaborators

Only two individuals scored significantly according to Factor C. They also scored more strongly according to Factor A. Again, this factor type shares some of the same characteristics of Factor A types (with regard to statements 39, 47, 52 and 57). However, there are some notable distinctions. First of all, Factor C participants stress the importance of economic development and the opportunities arising from such development:

– Statement 7: Sustainable development is important for ensuring a sustainable world economy and the economic engines of the future.
  3 3 5 3
– Statement 26: Environmental protection should not be considered separately from decisions regarding economic growth.
  3 3 5 1
– Statement 32: The highest priority of sustainable development is to provide jobs and a better quality of life for more Ukrainians.
  1 0 4 5
– Statement 49: Sustainable development is possible only in a true market economy.
  –2 –1 4 0

Furthermore, and somewhat in support of market solutions, Factor C subjects feel that neither governmental involvement nor individual concern for intergenerational equity have or will be effective (note that Factor C types differ significantly from the other factor types in their reaction to these statements).

– Statement 16: Ultimately, each of us takes the interests of future generations into account when we use or make decisions about natural resources, because we are concerned for our own descendants.
  0 0 –5 –1
– Statement 56: Ukrainian national laws, documents and discussions have greatly helped the cause of sustainable development and environmental protection in the country.
  –1 –2 –5 1

According to another defining characteristic, somewhat in conflict with the reaction to Statement 16, Factor C respondents feel a need for broad-based and cross-sector public involvement and support if sustainable development is to be achieved in Ukraine.

– Statement 19: For sustainable development to progress, different types of organizations (governmental agencies, private firms, NGOs) with quite distinct values and goals, must work together.
  4 3 5 0
– Statement 40: Achieving sustainable development will require stabilizing or reducing the environmental burden (the harm we cause the environment).
  3 4 4 –2

– Statement 53: Public participation in environmental decision making is important for sustainable development.
  4 2 4 –2
– Statement 31: The concept of sustainable development is too vague; it seems to mean different things to special, vested interests.
  –1 0 4 –2

The last statement parallels Factor B types uncertainty in defining sustainable development, but it more importantly supports the idea of broad involvement in describing and implementing the goals of sustainable development.

Factor D: Expert Deferrers

The final factor is somewhat unique. All the three individuals who scored significantly according to Factor D, scored at least as strongly according to D as according to A (one of these individuals is the only one who did not score significantly according to Factor A at all, but rather according to B and D). At first glance, there is little to distinguish this factor from the other three, but there are some significant differences. Most importantly, Factor D respondents advocate the appropriate people for policy-making and implementation are experts outside of the political system. Furthermore, they see a lesser role for the public at large:

– Statement 21: Ukrainian scientists have the expertise to plan the country's environmental preservation, but too often their advice is ignored by Ukrainian politicians and policy makers.
  2 2 1 4
– Statement 51: Access to information and public awareness are key elements in sustainable development.
  1 0 1 –4
– Statement 45: Sustainable development topics are "interdisciplinary" and should be taught at all levels of state school and university and in most areas of study (not just ecology).
  0 –1 1 –4
– Statement 4: Environmental groups can strongly influence public opinion about sustainable development.
  2 1 –1 –5
– Statement 14: Public action (protests, marches, etc.) is very important to the implementation of sustainable development in Ukraine.
  –3 –4 –5 –5
– Statement 53: Public participation in environmental decision making is important for sustainable development.
  4 2 4 –2

Not unlike Factor A types, Factor D types support a balanced approach to sustainable development (Statements 2 and 18). However, not unlike Factor C types, these respondents prioritize social and economic dimensions:

– Statement 32: The highest priority of sustainable development is to provide jobs and a better quality of life for more Ukrainians.
1 0 4 5

– Statement 3: Environmental issues are important, but social and economic needs are the primary consideration in national development strategies.
1 2 2 5

Further, their responses to Statement 3 hint that sustainable development in Ukraine can only be successfully achieved if other requisites are met, as supported by another statement:

– Statement 29: The governmental infrastructure necessary for the implementation of sustainable development does not exist in Ukraine.
0 –1 3 4

6. Summary and Conclusions

Recall the purpose of this research is to identify common attitudes and beliefs among various actors in the debate on sustainable development. The examination of thirty-six such actors identified four distinct factors among the participants. A summary of the characteristics represented by these factors is given in Table 4.

Table 4. Summary of Factor Characteristics

Factor Characteristics	Factors			
	A: Balanced Positivists	B: Balanced Pessimists/ Nationalists	C: Market Collaborators	D: Expert Deferrers
Priorities	balanced	balanced, but environment "first among equals"	economic development and opportunities	social/economic over environmental
Appropriate Loci of Policymaking	scientists as designers, government as regulators	national government (distrust of local)	broad-based public	experts (non-political)
Implementation in Ukraine	ready (go for it)	only a theory, hard to define	vague, but public can define and implement policy	currently lacking the necessary infrastructure

Source: authors' own research.

First of all, it is important to emphasize the strong positive correlation between these four factors. Furthermore, all but one participant in the study scored significantly according to Factor A. We advance the idea that this bodes well for future environmental endeavors in Ukraine, as there is much agreement on how to define and implement sustainable development. Factor A respondents support a balanced approach weighing the dimensions of sustainable development equally. They also see a clear role for scientists and other experts, as well as for government officials. They value science as a technique for determining what is best for Ukraine and government regulation for enforcing it. Furthermore, and also in the "good news" column, the vast majority of study participants believe that Ukraine is ready to move forward on the implementation of policies for sustainable development.

However, dissenting or minority viewpoints emerge from the study, a fact important to realize and address. Ten of thirty-six individuals scored significantly according to at least one of the other three factors (B, C and D). The Factor B minority also favors a balanced approach, but is careful to say that the environment should be protected first. Also, the balanced pessimists/nationalists feel that the appropriate governmental actor is at the national level and struggle somewhat to define sustainable development or see the practical aspects of the theory. Factor C dissenters raise the importance of economic development and economic opportunities above that of environmental goals. In somewhat of a contrast to the first two factors, these market collaborators do not see as strong a role for government, but rather call for the widespread engagement of members of the public and all segments of society. They stress that the concepts of sustainable development are vague and hard to measure, but feel that citizens can (and should) be involved in both the definition and implementation of goals of sustainable development. Finally, the Factor D expert deferrers would separate the implementation of policies for sustainable development from the world of politics, leaving them to the devices of scientists and other experts. Not unlike the market collaborators, Factor D types place an emphasis on the economic and social dimensions of sustainable development. They wonder if sustainable development can be currently achieved in Ukraine and cite a lack of infrastructure as a barrier. The characteristics of those scoring significantly according to Factors B, C and D are quite striking. First of all, of the ten individuals scoring significantly according to at least one of these minority factors, eight of them are women. Secondly, all but one of these participants are university-based, either as professors (2 individuals) or students (7 individuals). It is true that most (but not all) of these are associated with the Ukrainian National Agricultural University and may frequently interact with each other, but this is not sufficient to explain the spread across three factors. While it is beyond the scope of this paper to hypothesize why this may occur, it is an important issue which must be more fully examined.

After all, many of these young people will in the future be important actors in defining the approach to sustainable development (in governmental, agricultural, and educational spheres). It may be important to recognize a cultural or generational gap, if one exists. It is important to note that many other students and professors only scored significantly according to Factor A. However, the strong presence of these types of individuals among the minority factor types is interesting nonetheless.

The presence of minority factors or forces in the debate on sustainable development indicates the lack of a completely unified vision for Ukraine. Catalysts for sustainable development (*e.g.* those within parliament and key national ministries) must take this into account when designing and implementing policies affecting the economy and the environment. If the dialog on policy is to be truly open, transparent and participatory, it is incumbent that representative voices from these dissenting viewpoints be included. Hope lies in the fact that there already exists a strong foundation for agreement as demonstrated by the widespread consensus on Factor A. If participants from all four voices are allowed to come together to advance sustainable development, the interactions between various actors might lead to consensus goals and policies. If not, one danger lies in the co-option of the minority voices by Factor A types, leading to dissatisfaction with the process and pockets of resistance.

In conclusion, it is important to emphasize that the results from this (and other) Q-methodology studies are not generalizable to the greater public. Rather, Q-methodology is an intensive process that provides much insight into the p-sample, the actual participants involved in the study. For this reason it is important to include subjects that are theoretically important, such as we have done here; participants who are or will be involved in the dialog on sustainable development in Ukraine. Still, it would be beneficial to expand the p-sample to include even more key actors in the future, such as those working on environmental or social issues from the third or nongovernmental sector. Also, since this data was collected prior to the Orange Revolution, it may be interesting to repeat the analysis with the same p-sample to see if there has been any movement on these factors. For example, as economic development is a priority of the Yushchenko administration, does this skew respondents further away from a balanced approach and toward one emphasizing the economy? Are there additional priorities of society which are "squeezing out" sustainable development? Does sustainable development still hold value and promise for Ukrainians?

Q-methodology is a powerful tool for empirically examining attitudes and values. The application of the technique itself is democratic in that it solicits values and attitudes from all participants (if care is taken to include the voices of all stakeholders). The methodology itself can be a tool for democratization when it is utilized in the arena of participatory public policymaking. When ap-

plied to the context of sustainable development in Ukraine, it identifies areas of consensus and dissent, elicits ideas on how to proceed and directs focus on new and deeper avenues of research.

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